Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-51. (canceled)

52. (new) A method of delivering a radionuclide into target cells of a subject, comprising:

a) obtaining a composition comprising a radionuclide-labeled bis-aminoethanethiol (BAT)-targeting ligand conjugate, wherein the conjugate is capable of being taken up into the target cells; and

b) administering the conjugate to the subject.

53. (new) The method of claim 52, wherein the subject is a mammal.

54. (new) The method of claim 52, wherein the subject is a human.

55. (new) The method of claim 52, wherein the target cells are in the breast, ovary, prostate, endometrium, lung, brain, or liver.

56. (new) The method of claim 52, wherein the target cells comprise a tumor.

57. (new) The method of claim 56, wherein the tumor is breast cancer, lung cancer, prostate cancer, ovarian cancer, brain cancer, liver cancer, cervical cancer, colon cancer, renal cancer, skin cancer, head & neck cancer, bone cancer, esophageal cancer, bladder cancer, uterine cancer, lymphatic cancer, stomach cancer, pancreatic cancer, testicular cancer, lymphoma, or multiple myeloma.

58. (new) The method of claim 52, wherein the target cells comprise an inflammatory lesion in the subject.

59. (new) The method of claim 58, wherein the inflammatory lesion is a lesion that is secondary to infection.

60. (new) The method of claim 52, wherein the targeting ligand is a tissue-specific ligand.

61. (new) The method of claim 52, wherein the radionuclide-labeled bis-aminoethanethiol (BAT)-targeting ligand conjugate is a radionuclide-labeled ethylenedicysteine (EC)- targeting ligand conjugate.

62. (new) The method of claim 61, wherein the targeting ligand conjugate comprises the targeting ligand conjugated to one or both arms of ethylenedicysteine.

63. (new) The method of claim 52, wherein the targeting ligand conjugate comprises more than one targeting ligand.

64. (new) The method of claim 52, wherein radioactive signal from the administered targeting ligand conjugate localizes in the target cells.

65. (new) The method of claim 52, wherein the radionuclide is ^{99m}Tc, ^{188}Re, ^{186}Re, ^{183}Sm, ^{166}Ho, ^{90}Y, ^{89}Sr, ^{67}Ga, ^{68}Ga, ^{111}In, ^{153}Gd, ^{59}Fe, ^{225}Ac, ^{212}Bi, ^{211}At, ^{62}Cu, or ^{64}Cu.

66. (new) The method of claim 65, wherein the radionuclide is ^{99m}Tc.

67. (new) The method of claim 52, wherein the targeting ligand is an anticancer agent, DNA topoisomerase inhibitor, antimetabolite, tumor marker, folate receptor targeting ligand, tumor apoptotic cell targeting ligand, tumor hypoxia targeting ligand, DNA intercalator, receptor

marker, peptide, nucleotide, organ specific ligand, antibiotic, antifungal, glutamate pentapeptide, or an agent that mimics glucose.

68. (new) The method of claim 67, wherein the targeting ligand is an anticancer agent.

69. (new) The method of claim 68, wherein the anticancer agent is methotrexate, doxorubicin, tamoxifen, paclitaxel, topotecan, LHRH, mitomycin C, etoposide tomudex, podophyllotoxin, mitoxantrone, camptothecin, colchicine, endostatin, fludarabin, gemcitabine, or tomudex.

70. (new) The method of claim 67, wherein the targeting ligand is a tumor marker.

71. (new) The method of claim 70, wherein the tumor marker is PSA, ER, PR, CA-125, CA-199, CEA AFP, interferons, BRCA1, HER-2/neu, cytoxan, p53, or endostatin.

72. (new) The method of claim 67, wherein the targeting ligand is a folate receptor targeting ligand.

73. (new) The method of claim 72, wherein the folate receptor targeting ligand is folate, methotrexate, or tomudex.

74. (new) The method of claim 67, wherein the targeting ligand is a tumor apoptotic cell targeting ligand or a tumor hypoxia targeting ligand.

75. (new) The method of claim 74, wherein the targeting ligand is annexin V, colchicine, nitroimidazole, mitomycin, or metronidazole.

76. (new) The method of claim 67, wherein the targeting ligand is glutamate pentapeptide.

77. (new) The method of claim 67, wherein the targeting ligand is an agent that mimics glucose.

78. (new) The method of claim 77, wherein the agent that mimics glucose is glucosamine, deoxyglucose, neomycin, kanamycin, gentamicin, paromycin, amikacin, tobramycin, netilmicin, ribostamycin, sisomicin, micromicin, lividomycin, dibekacin, isepamicin, astromicin, or an aminoglycoside.

79. (new) The method of claim 78, wherein the agent that mimics glucose is glucosamine or deoxyglucose.

80. (new) The method of claim 52, wherein said radionuclide-labeled bis-aminoethanethiol (BAT)-targeting ligand conjugate comprises a linker conjugating the BAT to the targeting ligand.

81. (new) The method of claim 80, wherein the linker comprises a water soluble peptide, glutamic acid, aspartic acid, bromo ethylacetate, ethylene diamine, or lysine.

82. (new) The method of claim 81, wherein said linker is glutamate peptide or poly-glutamic acid.

83. (new) The method of claim 81, wherein the targeting ligand is estradiol, topotecan, paclitaxel, raloxifen, etoposide, doxorubricin, mitomycin C, endostatin, annexin V, LHRH, octreotide, VIP, methotrexate, or folic acid.